

# THE SPIDER GENUS *ANELOSIMUS* (ARANEAE: THERIDIIDAE) IN JAPAN AND TAIWAN

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## Synopsis

YOSHIDA, Hajime (7-18, Kagota 2-Chome, Yamagata, Yamagata 990, Japan) : The spider genus *Anelosimus* (Araneae: Theridiidae) in Japan and Taiwan. *Acta arachnol.*, 34: 31-39 (1986).

Three new species belonging to the family Theridiidae are described from Japan and Taiwan, under the names of *Anelosimus taiwanicus*, *A. iwawakiensis* and *A. exiguus*. The female genitalia and the male palpus of the Japanese species, *A. crassipes* (BÖSENBERG et STRAND), are illustrated. A key to these four species is given.

The spider genus *Anelosimus*, originally established by SIMON in 1891, was regarded for a long time as a junior synonym of *Theridion* WALCKENAER, 1805. Since the American species of this group were revised by LEVI (1956), however, many species have been recorded as *Anelosimus*. At present, about 35 species are placed in it. Four are known from Europe and Mediterranean countries, while most of the remainings were recorded from the Americas, mainly from South America. In Japan and Taiwan, only one species, *A. crassipes* (BÖSENBERG et STRAND), is recorded, but SAITO's (1933) record of this spider from Taiwan seems to be erroneous, since all the Taiwanese specimens available for my study are not identical with true *A. crassipes*. Besides, two more species of the same genus were recently found by myself from Japan, one in the Kii Peninsula and the other in the Yaeyama Islands.

In this paper, the four species of *Anelosimus* from Japan and Taiwan are dealt with. The holotypes and one paratype of the new species described herein will be deposited in the collection of the National Science Museum (Natural History), Tokyo. The remaining paratypes are preserved in the collection of the Arachnological Society of East Asia, Osaka, and in my collection.

***Anelosimus* SIMON, 1891**

Medium-sized theridiid spiders, about 1–6 mm in length. Chelicerae with a few teeth on anterior margin and a series of denticles on the posterior. Abdomen oval, longer than wide, with a dorsal dark band. Colulus either present and bearing two setae or replaced by two setae. Female genitalia usually with coiled ducts (Figs. 3, 7). Male palpus usually with circular embolus (Figs. 1, 5, 10, 14).

**Key to the Japanese and Taiwanese species  
of the genus *Anelosimus***

1. Male ..... 2
- Female ..... 5
2. First metatarsi with ventral spines ..... 3
- First metatarsi without ventral spines ..... 4
3. Palpal embolus swirly; conductor large; tibiae longer than wide; first metatarsi with thick spines (Range: Hokkaido, Honshu, Shikoku, Kyushu and the Ryukyus)..... *A. crassipes* (BÖSENBERG et STRAND)
- Palpal embolus coiled; conductor small; tibiae nearly as long as wide; first metatarsi with fine spines (Range: Taiwan)..... *A. taiwanicus* n. sp.
4. Palpal embolus forming one complete circle; first femora without spine (Range: Kii Peninsula, Honshu)..... *A. iwawakiensis* n. sp.
- Palpal embolus forming two complete circles; first femora with spines (Range: Yaeyama Islands, the Ryukus)..... *A. exiguus* n. sp.
5. Genital duct coiled ..... 6
- Genital duct not coiled ..... 7
6. Epigynum with two pair of dark areas; chelicerae with five teeth on posterior margin (Range: Hokkaido, Honshu, Shikoku, Kyushu and the Ryukyus)..... *A. crassipes* (BÖSENBERG et STRAND)
- Epigynum with one pair of dark areas; chelicerae with four teeth on posterior margin (Range: Taiwan)..... *A. taiwanicus* n. sp.
7. Seminal receptacles globular; more than 2.2 mm in total length (Range: Kii Peninsula, Honshu)..... *A. iwawakiensis* n. sp.
- Seminal receptacles oval; less than 2.2 mm in total length (Range: Yaeyama Islands, the Ryukyus)..... *A. exiguus* n. sp.

**Anelosimus crassipes (BÖSENBERG et STRAND)**

(Figs. 1-3)

*Enoplognatha crassipes* BÖSENBERG et STRAND, 1906, p. 157, pl. 12, fig. 271.*Theridium higense* DÖNITZ et STRAND, 1906, in BÖSENBERG et STRAND, p. 381, pl. 3, fig. 45.*Enoplognatha foliicola* DÖNITZ et STRAND, 1906, in BÖSENBERG et STRAND, p. 381, pl. 3, fig. 36.*Anelosimus crassipes*: YAGINUMA, 1960, p. 38, text-fig. 37, pl. 11, fig. 64.

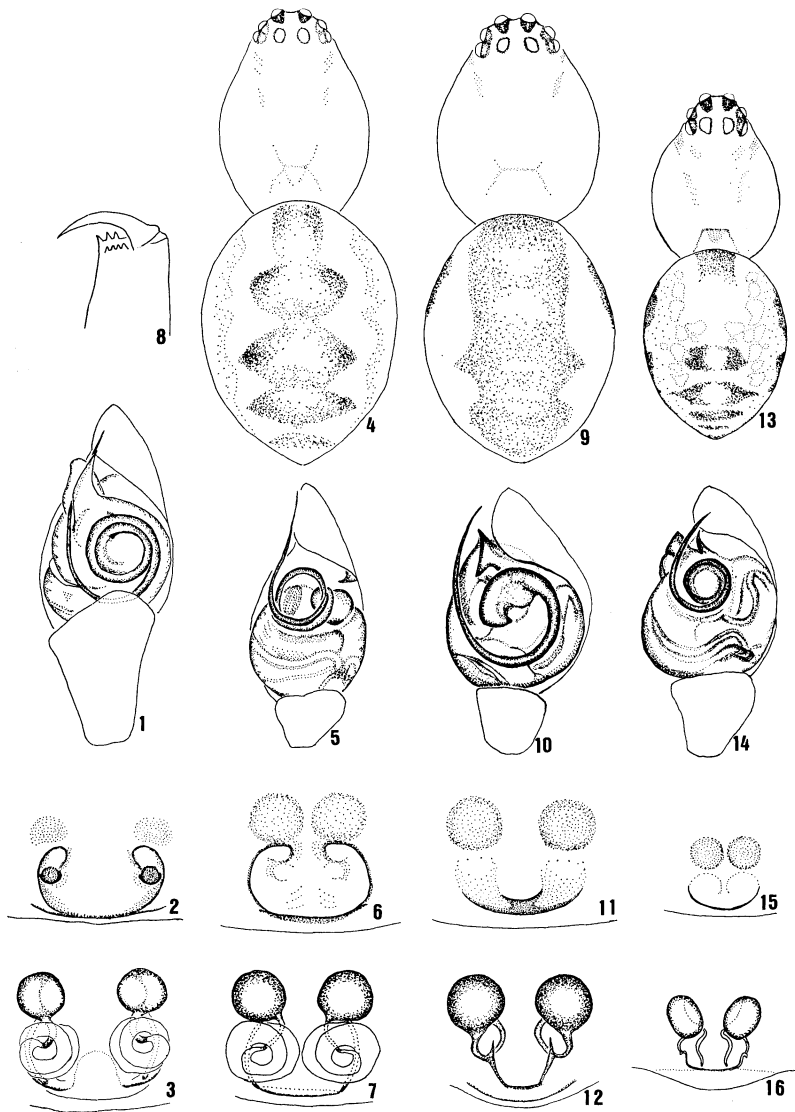
*Material examined.* 5♀, Ominato, Mutsu, Aomori Pref., 17-VII-1978, H. YOSHIDA; 3♀, Mt. Namidate, Aomori, Aomori Pref., 15-VII-1978, H. YOSHIDA; 2♀, Nishi-zao, Yamagata, Yamagata Pref., 3-VIII-1976, H. YOSHIDA; 2♀, Zao-onsen, Yamagata, Yamagata Pref., 11-VIII-1976, H. YOSHIDA; 2♀, Kuragaki, Nose, Osaka Pref., 29-IV-1979, H. YOSHIDA; 1♀, Mt. Iwawaki, Osaka Pref., 27-VI-1976, H. YOSHIDA, 1♂, 1-VI-1977, H. YOSHIDA; 1♀, Matsuoji, Izumi, Osaka Pref., 3-V-1977, H. YOSHIDA, 1♂, 22-IV-1978, H. YOSHIDA; 1♀, Mt. Inunaki, Wakayama Pref., 8-V-1969, H. TANAKA; 1♀, 1♂, Muroto-misaki, Kochi Pref., 29-V-1970, H. TANAKA; 2♀, Mt. Tachibana, Fukuoka, Fukuoka Pref., 2-V-1978, H. YOSHIDA; 1♂, Mt. Hikosan, Fukuoka Pref., 20-V-1971, H. TANAKA; 1♀, 1♂, Onoma, Yakushima Is., Kagoshima Pref., 13-VIII-1968, Y. NISHIKAWA; 1♀, Tokutsu, Tokunoshima Is., Kagoshima Pref., 28-III-1978, H. YOSHIDA; 3♀, Hentona, Okinawa Is., Okinawa Pref., 15-VII-1976, H. YOSHIDA, 1♀, 6-VIII-1978, H. YOSHIDA; 2♀, Chinen, Okinawa Is., Okinawa Pref., 19-III-1979, H. YOSHIDA; 2♀, Mt. Banna-dake, Ishigaki Is., Okinawa Pref., 11-VII-1976, H. YOSHIDA, 1♂, 19-III-1977, H. YOSHIDA; 1♀, Kabira, Ishigaki Is., Okinawa Pref., 10-VII-1976, H. YOSHIDA, 4♀, 15-III-1977, H. YOSHIDA; 1♀, Shirahama, Iriomote Is., Okinawa Pref., 16-III-1977, H. YOSHIDA.

*Distribution.* Japan (Hokkaido, Honshu, Shikoku, Kyushu and the Ryukyus) and Korea.

Though recorded from Taiwan, this species does not seem to occur in that island. SAITO's (1933) material should have belonged to the following new species. It was also recorded from Korea by PAIK (1979a, b), but a confirmation of his identification seems needed.

**Anelosimus taiwanicus n. sp.**

(Figs. 4-8)



Figs. 1-3. *Anelosimus crassipes* (BÖSENBERG et STRAND). 1. Male left palpus, ventral view. 2. Female epigynum, ventral view. 3. Female genitalia, dorsal view.

Figs. 4-8. *Anelosimus taiwanicus* n. sp. 4. Male carapace and abdomen, dorsal view. 5. Male left palpus, ventral view. 6. Female epigynum, ventral view. 7. Female genitalia, dorsal view. 8. Male left chelicera, posterior view.

Figs. 9-12. *Anelosimus iwawakiensis* n. sp. 9. Male carapace and abdomen, dorsal view. 10. Male left palpus, ventral view. 11. Female epigynum, ventral view. 12. Female genitalia, dorsal view.

Figs. 13-16. *Anelosimus exiguus* n. sp. 13. Male carapace and abdomen, dorsal view. 14. Male left palpus, ventral view. 15. Female epigynum, ventral view. 16. Female genitalia, dorsal view.

*Enoplognatha crassipes*: SAITO, 1933, p. 46, pl. 3, fig. 14.

*Male* (Holotype). Total length 2 mm. Carapace length 1 mm, width 0.76 mm. Abdomen length 1.26 mm, width 0.92 mm. First femur 1.39 mm; patella and tibia 1.47 mm; metatarsus 0.92 mm; tarsus 0.53 mm. Second patella and tibia 0.92 mm; third 0.63 mm; fourth 0.82 mm.

PME largest; diameters in ratio, AME: ALE: PME: PLE=5:5:6:5. AME and PME four-fifths their diameter apart. Lateral eyes touching. MOA almost square. Chelicerae with three teeth on anterior margin and four small ones on the posterior. Leg formula 1243. First femora large and thick with many bristles and spines; first metatarsi with ten fine ventral spines. Colulus replaced by two setae. Palpus as shown in Fig. 5: Embolus coiled; conductor small; tegulum large.

Cepalothorax basal color yellowish brown. Carapace darker in head region. Chelicerae and first femora brown. Abdomen grayish yellow; dorsum with darker median longitudinal band, bordered with wide white stripes.

*Female* (Paratype I). Similar to male, but differs in the following points: Total length 4.3 mm. Carapace length 1.66 mm, width 1.32 mm. Abdomen length 1.95 mm, width 1.63 mm. First femur 2.03 mm; patella and tibia 2.5 mm; metatarsus 1.68 mm; tarsus 0.79 mm. Second patella and tibia 1.71 mm; third 1.24 mm; fourth 1.66 mm. Eyes almost equal in size. AME and PME their diameter apart. MOA slightly longer than wide. First legs without spine. Genitalia as shown in Fig. 7: Ducts thick and coiled. Abdomen with paraxial thin white stripes; coloration of the other points is same as that of male.

*Type material*. Holotype: ♂ (NSMT-Ar 560), Yangming-shan, Taipei, Taiwan, 7-IV-1979, H. YOSHIDA. Paratype I: ♀ (NSMT-Ar 561), Chihpen spring, Taitung County, Taiwan, 15-VII-1977, M. YOSHIMURA. Other paratypes: 1 ♀, 1 ♂, Wulai, Taipei County, 4-VII-1977, M. YOSHIMURA; 4 ♀, Kenting, Pingtung County, 12~13-VII-1977, H. YOSHIDA & M. YOSHIMURA; 2 ♀, Chihpen spring, Taitung County, 24-III-1968, H. TANAKA, 2 ♀, 2 ♂, 15~17-VII-1977, H. YOSHIDA & M. YOSHIMURA.

*Distribution*. Taiwan.

*Remarks*. This species is close to *A. crassipes* (BÖSENBERG et STRAND), but distinguished from it by the male palpus with coiled embolus, small conductor and large tegulum. Male total length varies from 2 mm to 2.4 mm; female from 2.2 mm to 4.3 mm. SAITO (1933) recorded a Taiwanese spider under the name of *A. crassipes*, but his illustration of its epigynum agrees with that of this

species. LEE (1964) illustrated *A. crassipes* in his "Spiders of Formosa", but it was a copy of YAGINUMA's (1960) drawing.

***Anelosimus iwawakiensis* n. sp.**

(Figs. 9-12)

*Male* (Holotype). Total length 2 mm. Carapace length 1 mm, width 0.79 mm. Abdomen length 1.13 mm, width 0.89 mm. First femur 1.45 mm; patella and tibia 1.63 mm; metatarsus 0.92 mm; tarsus 0.53 mm. Second patella and tibia 1 mm; third 0.66 mm; fourth 0.87 mm.

Eyes almost equal in size. AME and PME five-sixths their diameter apart. Lateral eyes touching. MOA slightly wider than long. Chelicerae with three teeth on anterior margin and three small ones on the posterior. Leg formula 1243. First femora without spine. Colulus replaced by two setae. Palpus as shown in Fig. 10: Embolus large and forming one complete circle; conductor large with two projections.

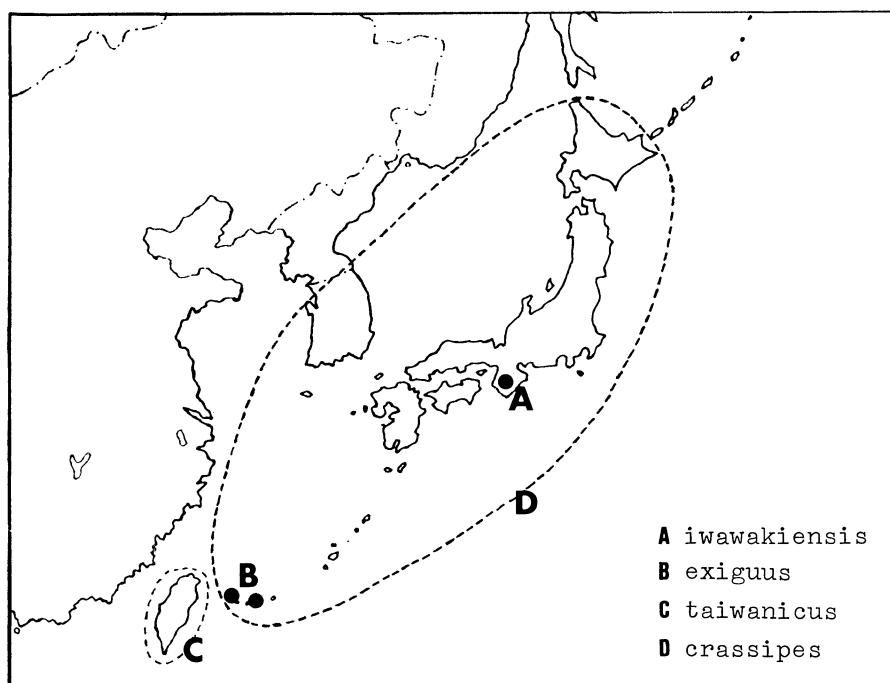


Fig. 17. Distribution of *Anelosimus* in Japan and Taiwan.

Carapace, sternum and legs yellowish brown. Chelicerae, maxillae and labium brown. Abdomen grayish white; dorsum with darker median, longitudinal band and small white spots; venter with a dusky area between epigynum and spinnerets.

*Female* (Paratype I). Similar to male, but differs in the following points: Total length 2.5 mm. Carapace length 0.92 mm, width 0.74 mm. Abdomen length 1.71 mm, width 1.47 mm. First femur 1.18 mm; patella and tibia 1.32 mm; metatarsus 0.87 mm; tarsus 0.5 mm. Second patella and tibia 0.92 mm; third 0.68 mm; fourth 0.95 mm. PME slightly larger than laterals. AME their diameter apart. Leg formula 1423. Genitalia as shown in Fig. 12: Seminal receptacles globular; duct twisted. Coloration is same as that of male, excluding sternum brown.

*Type material.* Holotype: ♂ (NSMT-Ar 556), Mt. Iwawaki-san, between Osaka and Wakayama Prefectures, 20-V-1978, H. YOSHIDA. Paratype I: ♀ (NSMT-Ar 557), same locality as holotype, 17-VI-1978, H. YOSHIDA. Other paratypes: 1♂, same data as paratype I, 6♀, 1♂, same locality, 25-VI-1978, H. YOSHIDA.

*Distribution.* Japan (Kii Peninsula, Honshu).

*Remarks.* This species is similar to *A. exiguus* n. sp., but is distinguishable from the latter by the male palpus with embolus forming one complete circle and conductor divided into two projections, and by the female genitalia with seminal receptacles globular. Male total length varies from 1.8 mm to 2.1 mm; female from 2.2 mm to 2.6 mm.

### *Anelosimus exiguus* n. sp.

(Figs. 13-16)

*Male* (Holotype). Total length 1.6 mm. Carapace length 0.87 mm, width 0.66 mm. Abdomen length 0.87 mm, width 0.74 mm. First femur 1.08 mm; patella and tibia 1.47 mm; metatarsus 0.68 mm; tarsus 0.42 mm. Second patella and tibia 0.82 mm; third 0.55 mm; fourth 0.71 mm.

ALE smallest; diameters in ratio, AME : ALE : PME : PLE = 3 : 2 : 3 : 3. AME five-sixths their diameter apart. PME seven-sixths their diameters apart. MOA length : anterior width : posterior width = 6 : 7 : 8. Leg formula 1243. First femora with many spines distally. Colulus replaced by two setae. Palpus as shown in Fig. 14: Embolus small and forming two complete circles; con-

ductor pointed; tegulum large.

Carapace brown, dark in head region. Chelicerae, maxillae and labium brown. Sternum yellowish brown. Legs yellowish brown, first femora brown. Abdomen grayish yellow; dorsum with basal and three transverse dark areas, and white spots; venter with a dusky area between epigynum and spinnerets.

*Female* (Paratype I). Similar to male, but differs in the following points: Total length 2 mm. Carapace length 0.87 mm, width 0.68 mm. Abdomen length 1.24 mm, width 1 mm. First femur 0.97 mm; patella and tibia 1.08 mm; metatarsus 0.68 mm; tarsus 0.39 mm. Second patella and tibia 0.97 mm; third 0.55 mm; fourth 0.74 mm. Posterior eyes larger than the anterior. AME their diameter apart. MOA almost square. Genitalia as shown in Fig. 16: Seminal receptacles oval; duct twisted. Coloration is same as that of male.

*Type material.* Holotype: ♂ (NSMT-Ar 558), Mt. Banna-dake, Ishigaki Island, Okinawa Prefecture, Japan, 1-VIII-1978, H. YOSHIDA. Paratype I: ♀ (NSMT-Ar 559), same data as holotype. Other paratypes: 2♀, 4♂, same data as holotype, 6♀, 4♂, same locality, 11-VII-1976, H. YOSHIDA, 4♀, 2♂, 19-III-1977, H. YOSHIDA; 2♀, 1♂, Kabira, Ishigaki Is., 10-VII-1976, H. YOSHIDA, 8♀, 15-III-1977, H. YOSHIDA, 1♂, 3-VIII-1978, H. YOSHIDA; 1♀, 1♂, Yoshihara, Ishigaki Is., 13-VII-1976, H. YOSHIDA; 1♀, Shirahama, Iriomote Is., 16-III-1977, H. YOSHIDA; 1♀, Amitori, Iriomote Is., 17-III-1977, H. YOSHIDA.

*Distribution.* Japan (Yaeyama Islands, the Ryukyus).

*Remarks.* This species is related to *A. iwawakiensis* n. sp. Its diagnostic characters are given under the heading of *A. iwawakiensis* and also in the key. Male total length varies from 1.3 mm to 1.8 mm; female, 1.8 mm to 2.2 mm. This species and *A. crassipes* (BÖSENBERG et STRAND) mixedly inhabit the Yaeyama Islands, being occasionally collected by same sweeping net.

#### Acknowledgements

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#### 摘 要

吉田 哉 (〒990 山形市竈田2丁目7番18号): 日本および台湾産のアシプトヒメグモ属 (真正



蜘蛛目：ヒメグモ科)。

日本および台湾産のアシプトヒメグモ属の3新種、タイワンアシプトヒメグモ (新称) *Anelosimus taiwanicus*・イワキアシプトヒメグモ (新称) *A. iwawakiensis*・コアシプトヒメグモ (新称) *A. exiguus*, を記載した。なお日本産のアシプトヒメグモ *A. crassipes* (BÖSENBERG et STRAND, 1906) の生殖器を図示し、これら4種の検索表を付した。

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